Survey and Manage Species Analysis

Somes Bar Integrated Fire Management Project
Western Klamath Restoration Partnership (WKRP)
Orleans and Ukonom Ranger Districts, Six Rivers National Forest
December 4, 2017

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Survey and Management Report for Six Rivers National Forest
December 4, 2017

Survey & Manage Guidance 2017
Six Rivers National Forest

This document is intended to provide a summary of the current status and management direction for all the Survey & Manage (S & M) fauna species that occur on Six Rivers National Forest (SRNF) to include the Ukonom Ranger District that is on the Klamath National Forest (KNF). The document also addresses those Survey & Manage vascular, non-vascular and fungi species that correspond to the Somes Bar Integrated Fire Management Project, WKRP project area.

The following document: "Forest Service Correspondence, File Code 1950 - Direction Regarding the Survey and Manage Standards and Guidelines - May 13, 2014" provides the current Forest Service direction for the S & M program. At this point in time, project work on SRNF will be considered under either option 2a or 2b, unless the project record can demonstrate that "Survey and Manage pre-disturbance survey(s) have been initiated (defined as "at least one occurrence of actual in-the-field surveying undertaken according to applicable protocol") for the project.

Under Option 2, management direction is dependent on when the project was initiated. Initiated is defined in this context as "scoping [has been] initiated or the project is entered into the Schedule of Proposed Actions". Districts can choose which direction to follow, if the project was initiated **prior to April 30, 2015**, the project can follow the direction in (a) or (b) below. For projects initiated **after April 30, 2015**, your project must follow direction in (b):

"a) The January 2001 ROD standards and guidelines and the associated January 2001 species list, *and/or* the four categories of projects exempt from the Survey and Manage standards and guidelines as stipulated by Judge Pechman (October 11, 2006 Pechman exemptions). (Same as previous June 12, 2013 Interim Direction.) See Enclosure 2 for the January 2001 species list.

(b) The January 2001 ROD standards and guidelines and the December 2003 species list, except for the red tree vole which remains as Category C across its range, *and/or* the four categories of projects exempt from the Survey and Manage standards and guidelines.

Exemptions

The four categories of projects exempt under option 2b for the Survey and Manage standards and guidelines as stipulated by Judge Pechman (October 11, 2006, "Pechman exemptions") are:

a.) Thinning projects in stands younger than 80 years old;

b.) Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned.

c.) Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road and trail decommissioning; and where the stream improvement work is the placement of large wood, channel and floodplain reconstruction, or removal of channel diversions; and

d.) The portions of projects involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and manage requirements except for thinning of stands younger than 80 years old under subparagraph a of this paragraph.

Trigger and the need for survey of the proposed project area, three criteria must be evaluated:

- It must occur within the suspected range of a species covered by the appropriate protocol (by year and species).
- It must occur within suitable habitat for those target species.
- The proposed project must have the potential of being a habitat disturbing activity which would cause significant negative effect on the species habitat or the persistence of the species at the site.

- **Three basic criteria must be met for species to be included in the standards and guidelines:** The species must occur within the Northwest Forest Plan (NWFP) area, or occur close to the NWFP area and have potentially suitable habitat within the NWFP area. The species must be closely associated with late-successional or old-growth forest. The reserve system and other Standards and Guidelines of the Northwest Forest Plan do not appear to provide for a reasonable assurance of species persistence.

S&M Fauna

Under option 2b, **there is one category C mammal species (red tree vole) where the mapped range occurs on the NRA, Orleans and a portion of the Ukonom Ranger District. One category A mollusk species (Big Bar Hesperian) that occurs on the Lower Trinity District and One category A mollusk species (Blue-gray tail-dropper) that occurs on the Orleans and Lower Trinity Ranger Districts. These species will trigger the need for pre-disturbance surveys**, unless the project does not result in a "significant negative effect on the species habitat, or the persistence of the species at the site" (January 2001 Record of Decision, pg. 22 S & G). In general, what constitutes a "significant negative effect" will vary by species. Additional guidance on what types of project activities would not result in "significant negative effect" is included in the following documents: IB-OR-2002-253 - Survey and Manage Species - Flexibility in the 2001 ROD, IB-OR-2001-214 - Answers to Questions on 2001 Survey and Manage Standards and Guidelines (First Set), Attachment 1 - Questions on Use of the Record of Decision & Standards & Guidelines. Under these guidelines, some projects are exempt from pre-disturbance surveys if the activity would not result in "significant negative effect" or are considered "routine maintenance" Attachment 1 - Questions and Answers on Routine Maintenance, IB-OR-2002-033 - Answers to Questions on 2001 Survey and Manage Standards and Guidelines (Second Set).

S&M Plants and Fungi Option 2b is applicable to the Somes Bar/WKRP project. This option references the December 2003 species list. The list includes numerous fungi species that could occur on the Forest and within the project area. Of the plant species, Table 2 below lists the species considered for this project by virtue of the species range and the presence of potentially suitable habitat in the project area. Beyond activities captured by the Pechman exemptions listed above, the trigger for pre-disturbance surveys is based upon the potential for the activity to be habitat disturbing and thus resulting in a "significant negative effect" to the persistence of species at the site. The following paragraphs elaborate on the definitions of "habitat disturbance" and "persistence at a site."

Defining significant negative effect on the species habitat, or persistence of the species at the site.

Habitat Disturbing Activities (species habitat)

- Defined as those disturbances likely to have a significant negative impact on the species habitat, its life cycle, microclimate, or life support requirements.
- The evaluation of the scale, scope, and intensity of the anticipated negative impact of the project on habitat or life requirements should include an assessment of the type, timing, and intensity of the disturbing activity.

- "Habitat-disturbing" is not necessarily the same as "ground-disturbing"; helicopter logging or logging over snow-pack, for example, may not disturb the ground but might clearly affect microclimate or life cycle habitat factors.

Exemptions:

- Routine maintenance of improvements and existing structures is not considered a habitat-disturbing activity. Examples include pulling ditches, clearing encroaching vegetation, managing existing seed orchards, and falling hazard trees.
- Pre-disturbance surveys are not required for wildland fires for benefits in designated wilderness. Wildland fires for resource benefits are prescribed fires that result from natural ignition, are consistent with the applicable land and resource management plan, are addressed in a fire management plan, and are burning within prescription (see S&G pg. 22).
- Exemptions to pre-disturbance survey requirements may also be proposed for wildland fire for resource benefits in LSR if the Late-Successional Reserve Assessment addresses the potential presence and likely effect on Survey and Manage species, and REO review of that aspect of the Assessment concludes such fire(s) will not prevent achievement of the persistence objectives of these standards and guidelines.
- A line officer should seek a specialists recommendations to help determine the need for a survey based of site-specific information. The project may not require surveys if no suitable habitat exists within the project area, project is outside the range of the species/taxa, or if the **project design can avoid habitat associated with a given species**.

Persistence of the species at the site

- Defined as whether the activity might cause a significant negative effect on the habitat or the persistence of the species **at the site** where the activity is being proposed. There is no reference in the survey and manage standards and guidelines to look at the watershed, District, or range-wide scales when making this determination. It really is not a question about the persistence of the actual species as a whole, instead it's a question about the persistence of a (potential) site of a species.

Under the survey and manage standards and guidelines, to provide a reasonable assurance of species persistence for the the Category A mollusks), we are to survey any project that might affect a (potential) site, and manage (protect) sites found. If not all sites are needed to meet the persistence objective, then the species should be moved into a different category that provides greater flexibility, or removed from the list.

For those two species, use pages 9-12 of the Terrestrial Mollusk survey protocol as a guide on determining what a habitat-disturbing activity is. The protocol represents our direction on determining when and how to conduct surveys.

Species requiring pre-disturbance surveys

- Pre-disturbance surveys are conducted prior to signing NEPA decisions or decision documents for habitat disturbing activities. This applies to Category A and C species, as well as Category B fungi if proposed activities are occurring in late-succession forest stands and considered habitat disturbing.
- Surveys are conducted using protocols for each species or taxonomic group (e.g. fungi species)

Table 1 below includes all S&M fauna species that are known to occur on the SRNF and which management category they fall into under each management option (2a or 2b). It is likely that most projects would adopt option 2b, as this is less restrictive (has fewer species with required management). Additional information relevant to each S & M species and supporting documentation used to populate the table are included after the table.

Table 2 includes the S&M plant species that are known or have the potential to occur in the project area and only refers to the list associated with option 2b—those projects initiated after April 30, 2015.

Table 1. Information on the management category and occurrence by Ranger District for all Survey & Manage species known or suspected to occur on the SRNF.

Group	Common Name	Scientific Name	S & M Category* "2014 option 2a" Project initiated prior to April 30, 2015	S & M Category "2014 option 2b" Project initiated after April 30, 2015	Species Range by SRNF District				
					Smith River NRA	**Orleans**	**Ukonom**	**Lower Trinity**	**Mad River**
Vert.	Del Norte Salamander	*Plethodon elongatus*	S&M Cat D[1]	None	**X**	**X**	**X**	**X**	
Vert.	Oregon Red Tree Vole	*Arborimus longicaudus*	**S&M Cat C[5]**	**S&M Cat C[5]**	**X**	**X**	**X**		
Vert.	Great Grey Owl	*Strix nebulosa*	**S&M Cat C (not req. in CA)**	**S&M Cat A[6] (not req. in CA)**					
Mollusk Snail	Hooded Lancetooth	*Ancotrema voyanum*	S&M Cat E[3,4]	None	**X**	**X**	**X**	**X**	**X**
Mollusk Snail	Oregon shoulderband	*Helminthoglypta hertleini*	S&M Cat B[4]	None			**X**		
Mollusk Snail	Trinity shoulderband	*Helminthoglypta talmadgei*	**S&M Cat A**	S&M Cat D[1]		**X**	**X**	**X**	**X**
Mollusk Snail	Big Bar Hesperian	*Vespericola pressleyi*	**S&M Cat A**	**S&M Cat A**				**X**	
Mollusk Snail	Klamath sideband	*Monadenia fidelis klamathica*	S&M Cat B[3,4]	None			**X**	**X**	**X**
Mollusk Snail	Yellow-based Sideband	*Monadenia infumata ochromphalus*	S&M Cat B[3,4]	None		**X**	**X**	**X**	**X**
Mollusk Snail	Tehamana chaparral	*Trilobopsis tehamana*	**S&M Cat A[1]**	**S&M Cat A[2]**					
Mollusk Slug	Blue-gray tail dropper	*Prophysaon coeruleum*	**S&M -Cat A** (*In CA and WA only)*	**S&M -Cat A** (*In CA and WA only)*		**X**		**X**	

FOOTNOTES X = Species known or suspected to occur within Ranger District. * = "option a" is only applicable to projects initiated prior to April 30, 2015. **1** Although Pre-Disturbance Surveys are deemed practical for these species, continuing pre-disturbance surveys is not necessary in order to meet management objectives. **2**Tehama Chaparral not likely to occur on SRNF. **3** For these species, until Management Recommendations are written, the language "known and newly discovered sites of these species will be protected from grazing by all practical steps to ensure that the local population of the species will not be impacted" is the Management Recommendation and no other recommendations are imposed at this time. **4** Based upon direction contained in the ROD, equivalent-effort pre-disturbance surveys are required for these eight mollusk species. **5**Red Tree Vole. Range A = not all of Orleans district is in the range of the RTV, see map for exact range where pre-disturbance surveys are required. B = Elevations below 5000 ft. C = Areas North/West of the Klamath River. **6**Great Gray Owl individuals may have been detected but breeding pairs have not been documented no pre-disturbance surveys required in CA.

Table 2. List of SM Plant species that based upon the range and habitat have the potential to occur in the project area or were previously documented.			
Group	Scientific Name	S & M Category "2014 option 2b" Project initiated after April 30, 2015	Known or Previously documented
Non-vascular plants/Bryophytes	Buxbaumia viridis	E	Previously documented (one site)
	Ptilidium californicum	A	Potential
Non-vascular plants/Lichen	Dendriscocaulon intricatulum	E	Potential
Vascular plants	Cypripedium fasciculatum	C	Potential
	Cypripedium montanum	C	Potential
Fungi	Phaeocollybia olivaceae	E	Previously documented (one site)

Data used in generating the above table:

Survey and Manage category descriptions (from the ROD 2001):

Redefine Categories Based on Species Characteristics			
Relative Rarity	**Pre-Disturbance Surveys Practical**	**Pre-Disturbance Surveys Not Practical**	**Status Undetermined**
Rare	**Category A** - 57 species • Manage All Known Sites • Pre-Disturbance Surveys • Strategic Surveys	**Category B** - 222 species • Manage All Known Sites • N/A • Strategic Surveys	**Category E** - 22 species • Manage All Known Sites • N/A • Strategic Surveys
Uncommon	**Category C** - 10 species • Manage High-Priority Sites • Pre-Disturbance Surveys • Strategic Surveys	**Category D** - 14 species[1] • Manage High-Priority Sites • N/A • Strategic Surveys	**Category F** - 21 species • N/A • N/A • Strategic Surveys

[1] Includes three species for which pre-disturbance surveys are not necessary

S & M Guidance – Management category:

Forest Service Correspondence, File Code 1950 - Direction Regarding the Survey and Manage Standards and Guidelines - May 13, 2014

Faunal Species Habitat Requirements

Vertebrate Species

Great gray owl (*Strix nebulosa*), Category A species (Pre-disturbance Surveys).
Habitat: The **Great gray owl** primarily nests in the boreal forests in the western United States. In Montana, Wyoming, Idaho, Washington, Oregon, Nevada and California, it is also found in montane and subalpine forests (Winter 1986, Bull and Henjum 1987, Forsman and Bryan 1987, Franklin 1987, Bull and Duncan 1993). Great gray owls rely on old hawk and raven stick nests or natural depressions on broken-top snags or stumps for nest sites (Duncan and Hayward 1994). They also nest on natural platforms formed by dwarf-mistletoe. In southcentral Oregon coniferous forests associated with meadow systems were used for nesting (Forsman and Bryan 1987).
Range: Great gray owl have been observed during the breeding season in the CA Klamath and CA Cascades Physiographic Provinces, but have not been confirmed to be breeding in those areas. **Until we have knowledge to support breeding populations within these physiographic provinces, is not necessary to conduct pre-disturbance surveys on the SRNF.**

Oregon Red Tree Vole (*Arborimus longicaudus***),** Category C species (Pre-disturbance Surveys).
Habitat: The **Oregon Red Tree Vole** is a small arboreal microtine that is endemic to the coniferous forests of western Oregon and northwestern California. General habitat requirements include mature and old-growth conifer forests and older mixed-age conifer forests containing Douglas-fir, grand fir, Sitka spruce, or western hemlock with multi-layered canopies and branches capable of supporting nests. Conifer or conifer-dominated mixed confer-hardwood forests with canopy closure of intermediate, co-dominate and dominant trees $\geq$ 60%, and with two or more superdominant conifer trees per acre that have the following characteristics that provide foundations for vole nests: large limbs, palmate branch clusters, well developed crowns, cavities, broken tops, forked trunks, multiple leaders, or dwarf mistletoe (*Arceuthobium* spp.) brooms.
Range: There are two species of tree voles, the red tree vole (*Arborimus longicaudus*) that occurs in western Oregon and extreme northwestern California and the Sonoma tree vole (*Arborimus pomo*) that occurs in the coastal forests of California from the Klamath River south to Freestone in southern Sonoma County (Hays 1996, Forsman and Swingle, 2016). The red tree vole (*Arborimus longicaudus*) range has been subdivided into three survey zones (Amendment to the Survey and Manage Mitigation Measures, USDA and USDI 2000). The portion of the Ukonom Ranger District located within the range of the red tree vole is within the Xeric Survey Zone. The Orleans Ranger District and the NRA are located within the mesic survey zone. These Districts are located North and West of the Klamath River in NW California. In this portion of the zone the survey area goes up to the 5,000 foot elevation level (Survey Protocol for the Red tree Vole Version 3.0 2012)

Invertebrate Species

Species range: Mollusk protocol 3.0 (includes new range updates, pgs. 37-40):
Survey Protocol for Survey and Manage Terrestrial Mollusk Species, Version 3.0

Pre-disturbance surveys are required for all category "A" and "C" species. There are two species of mollusks that are category "A" under either S&M management option – *Prophysaon coeruleum* and *Vespericola pressleyi.* Because these two species require pre-disturbance surveys and they occur on two ranger districts (Lower Trinity and Orleans), all projects that trigger pre-disturbance surveys and are not exempted under the Pechman exemptions will need protocol surveys.
In some cases, professional opinion can be used to rationalize not conducting pre-disturbance surveys for species which are associated with particular habitat types that may occur within the project area, but will not be specifically managed (see species habitat descriptions below). For example, *Helminthoglypta hertlieni* occurs in talus rock outcrops with relatively open overstory and grassy open herbaceous vegetation. For timber sales, these type of habitats can easily be avoided and the project biologist can make the case that pre-disturbance surveys are not necessary because the project will not affect the species habitat. However, because the habitat association of the two Category "A" species on the KNF

are broad and are likely to occur in most forested environment, most if not all vegetation management projects will require pre-disturbance mollusk surveys.

Mollusk species habitat descriptions for those species that occur on the KNF (from Field Guide to Survey and Manage Terrestrial Mollusk Species from the Northwest Forest Plan 1999):

Option 2B list:

Trinity Shoulderband (*Helminthoglypta talmadgei)*, Category D species (Manage high priority sites).
Habitat: The **Trinity Shoulderband** has been found to be associated with deciduous tree species (especially oaks) in mixed hardwood/conifer stands. On moister sites it is associated with woody debris or root structures, moss and leaf litter, while rock refugia may be used in dry situations. Partial shading (or a combination of dense shade and open areas) is preferred and the presence of seasonal, herbaceous plants or grass may be a limiting factor.
Range: Trinity and Humboldt Counties, California. Also known in Klamath National Forest.

Big Bar Hesperian (*Vespericola pressleyi))*, Category A species (Pre-disturbance Surveys).
Habitat: The **Big Bar Hesperian** inhabits conifer and/or hardwood forest habitat in permanently damp areas within 200m of seeps, springs and stable streams. Woody debris and rock refugia near water are used by the species during dry and cold periods. Herbaceous vegetation and leaf litter are common habitat elements associated with this species.
Range: Trinity County, California, within boundaries of the Shasta-Trinity National Forest, up to 3000' elevation.

Tehama Chaparral *(Trilobopsis tehamana)*, Category A species (Pre-disturbance Surveys).
Habitat: The **Tehama Chaparral** is usually associated with rocky talus. This species has also been found under leaf litter and woody debris on the ground within 100 meters of limestone outcrops.
Range: An endemic species of Tehama, Butte, and Siskiyou Counties, California. Not likely to occur on Six Rivers National Forest.

Blue-grey Tail-dropper (*Prophysaon coeruleum)*, Category A species (Pre-disturbance Surveys).
Habitat: The **Blue-grey tail-dropper** is found in a wide range of moist and mixed conifer forests. In open or dry areas, it is usually located in sites with relatively higher shade and moisture levels than those of the general forest habitat. It is typically found in moist plant communities, such as big-leaf maple and sword-fern. This slug is usually associated with leaf and needle litter, wood chips from decomposing logs, mosses, and is known to browse on mycorrhizal fungi species. Fecal analysis in spring of 1998 showed fungal hyphal fragments and structures associated with mycorrhizal fungi root attachment. Spores of hypogeous fungi were also found.
Range: Puget Trough south through the western Cascade Range of Washington, Oregon, and Northern California. It is also suspected to occur on the east slope of the Cascade Range.

Option 2A list:

Hooded Lancetooth (*Ancotrema voyanum*), Category E species (Manage all known sites).
Habitat: The **Hooded Lancetooth** is found near streams or intermittent stream channels where substrate is permanently damp. Late successional conditions such as course woody debris, riparian hardwood trees, deep leaf mold, and a relatively closed forest canopy provide suitable habitat conditions. This species appears to be associated with limestone substrates mostly within an elevation range of 168-960 meters.
Range: Trinity and Shasta counties, California. Also known in Klamath Mountains, California on the Six Rivers and Klamath National Forests.

Oregon Shoulderband (*Helminthoglypta hertleini*), Category B species (Manage all known sites).
Habitat: The **Oregon Shoulderband** is generally associated with, though not restricted to talus and other rocky substrates. It is suspected to be found within its range wherever permanent ground cover and/or moisture is available. This may include rock fissures or large woody debris sites. This species is also adapted to somewhat dry conditions during a portion of the year.

Range: Klamath Province, including Jackson County (OR), on or near BLM Medford District land, and Siskiyou County (CA), with Shasta River sites on or adjacent to BLM land and near the eastern border of the Klamath National Forest. It may also be found as far north as Douglas County, Oregon.

Trinity Shoulderband (*Helminthoglypta talmadgei)*, Category A species. See habitat and range information above.

Klamath Sideband (*Monadenia fidelis klamathica),* Category B species (Manage all known sites).
Habitat: The **Klamath Sideband** is generally associated with stable riparian zones within semi-dry mixed deciduous and conifer forests, but not necessarily restricted to riparian zones. Late successional forest with high canopy closure, a mixed conifer and hardwood component, and the presence of large, down woody debris or rock talus is considered optimum habitat. This species has been found under logs, in rocky areas, and on pine needle and oak leaf litter.
Range: Known from Siskiyou and Humboldt Counties, California. Range may extend as far north as Josephine County, Oregon, but not east of the Sacramento River Basin or into coastal areas.

Yellow-based Sideband (*Monadenia infumata ochromphalus),* Category B species (Manage all known sites).
Habitat: The **Yellow-based Sideband** is generally associated with stable riparian zones within semi-dry mixed deciduous and conifer forests, but not necessarily restricted to riparian zones. Late successional forest with high canopy closure, a mixed conifer and hardwood component, and the presence of large, down woody debris or rock talus is considered optimum habitat. This species has been found under logs, in rocky areas, and on pine needle and oak leaf litter.
Range: Known from Siskiyou and Humboldt Counties, California. Range may extend as far north as Josephine County, Oregon, and possibly east of the Sacramento River Basin.

Tehama Chaparral *(Trilobopsis tehamana)*, Category A species. See habitat and range information above.

Blue-grey Tail-dropper (*Prophysaon coeruleum)*, Category A species. See habitat and range information above.

Previous Surveys for Oregon Red Tree Voles

Summary of Oregon red tree vole (*Arborimus longicaudus*) strategic surveys on Klamath National Forest

2000 Strategic Surveys on Klamath National Forest:

In 2000, distribution of the genus *Arborimus* in Siskiyou County was not well known. Historical locations at Happy Camp, Cecilville and Somes Bar, as recorded in Zentner (1966), were east of the known range of *A. pomo* and south of the known range of *A. longicaudus*. In addition, northern spotted owl pellets collected in the Scott River watershed in 1986 and 1999 indicate the presence of *Arborimus* sp. east and south of either species' known ranges. In 2000, the Klamath National Forest and the Yreka U.S. Fish and Wildlife Service developed a proposal to survey strategic locations on the Klamath and Six Rivers National Forests. Survey sites were identified in "appropriate habitat" near historical red tree vole (RTV) locations reported in the literature and areas within one-mile radius of northern spotted owl sites where pellet analysis indicates, or has indicated, the presence of red tree voles. The identified survey area extended from an area adjacent to the known range of *A. pomo* on the west to Scott Valley on the east. The survey period was scheduled for June 1, 2000 to November 30, 2000.

Eco-Ascension Research (EARC) was hired to implement the survey. From August to October, 2000, EARC conducted transect surveys at 77 sites within the survey area. EARC conducted ground based surveys along 600-meter transects and climbed 77 trees to verify RTV presence/absence and to investigate potential nesting habitat and possible nest structures not easily observed from the ground. A total of 8 active and 11 inactive red tree vole nests were found. Many of these nests were not visible from the ground. On two occasions, RTV nests were located after surveyors found fresh resin ducts on the ground; the associated nests were found within the upper crowns of trees and had not been visible from the ground. Twenty-one transects were surveyed on Happy Camp Ranger District, twenty-four survey transects

were located on Scott River Ranger District, nine transects were surveyed on Salmon River Ranger District, eighteen transects were surveyed at Ukonom Ranger District, and five transects were surveyed at Orleans Ranger District. Red tree vole nests were located on Ukonom and Orleans Ranger Districts only, with a total of 8 active and 11 inactive RTV nests found. Results of the 2000 Strategic Surveys are summarized in Table 1.

2002 Random Grid Strategic Surveys on Klamath National Forest

In 2002, Random Grid surveys were conducted within the known and suspected RTV range within Oregon and California. Four-hundred random sites were identified for survey, 30 of which were on the Oak Knoll, Happy Camp and Ukonom Ranger Districts of the Klamath National Forest. Plots were stratified by habitat (late-successional/old-growth or non late-successional/old growth) and by land allocation (reserve and matrix). The objectives of the surveys were to document presence of RTV nests at each plot, estimate the number of RTV nest trees across the range of the species, record the explicit location of RTV nests, and collect biological information about the species. Each survey area consisted of paired adjacent one-hectare plots (approximately 5 acres). Eight 100-meter transects were surveyed at each survey area. A minimum of 2 observers conducted the transect surveys. Tree climbing was used to verify status of all potential RTV nests structures identified from ground surveys. Tree climbing was also used in instances where the forest canopy could not be well observed from the ground, or when no potential RTV nests were observed during ground surveys in plots that contained large Douglas-fir trees. Twenty-nine plots were surveyed on the Klamath National Forest; 24 plots were in late-successional/old growth forest. No RTV nests were located on Happy Camp or Oak Knoll Ranger District. Active and inactive RTV nests were found at three plots on Ukonom Ranger District. The RTV sites located during the 2002 survey were in the general vicinity of the RTV sites located in 2000. All active and inactive RTV locations on the Ukonom Ranger District are in a 33-square mile area, from Medicine Creek south to Beans Gulch.

Table 2. Results from 2000 Red Tree Vole Strategic Surveys on Klamath and Six Rivers National Forests.

District	Location	# Transects	# RTV Nests Active/Inactive	District	Location	# Transects	# RTV Nests Active/Inactive
52	Clear Ck	2	0	55	Long Gulch	1	0
52	O'Neil Ck	2	0	55	S Fk Kelsey	1	0
52	Grider Ck	4	0	55	Unknown	1	0
52	Fourmile Ck	1	0	55	Jackson Creek	2	0
52	Sutcliff Ck	1	0	55	Panther Cove	1	0
52	Grayback	2	0	55	Clear Creek (McAdam)	1	0
52	Cade Mountain	1	0	55	Etna Ck	1	0
52	Doolittle Ck	1	0	55	Thompkins Ck	1	0
52	Little Grider Ck	1	0	55	Rattlesnake Ck	1	0
52	China Ck	1	0	55	Gumboot Ck	1	0
52	Granite Ck	1	0	55	Hungry Ck	1	0
52	King Ck	1	0	55	Taylor Ck (Callahan)	1	0
52	Coon Ck	1	0	55	Slide Ck	1	0
52	Haypress Ck	1	0	55	Dark Gulch	1	0
54	Ray's Gulch	1	0	55	Kangaroo Ck	1	0
54	Sugar Creek	1	0	58	Copper Ck	2	**4/3**
54	Mule Bridge	1	0	58	Irving Ck	0	0
54	St. Claire Ck	1	0	58	Rock Creek	8	**3/6**
54	W. Shadow Ck	1	0	58	Dillon Mt	2	0
54	Eddy Gulch	2	0	58	Rogers	1	0
54	Butcher Gulch	1	0	58	Oak Flat	1	0
54	(unknown)	1	0	Orleans	Blue Creek	1	**0/2**
55	Horse Ck	5	0	Orleans	Bluff Creek	3	**1/0**
55	Middle Ck	2	0	Orleans	Elk Valley	1	**0**
55	Scott Bar	1	0				

Table 3. Results from 2002 random grid red tree vole surveys.

2002 Random Grid RTV Strategic Survey								
Matrix/Non-Late-Successional/Old-Growth								
FIA Plot No.	**Forest**	**District**	**Geographic Area**	**Land Use Allocation**	**Strata**	**Longitude**	**Latitude**	**Results**
5045	Klamath	52	Clear Creek	matrix	1	-123.34	41.83	No RTV
Matrix/Late-Successional/Old-Growth								
FIA Plot No.	**Forest**	**District**	**Geographic Area**	**Land Use Allocation**	**Strata**	**Longitude**	**Latitude**	**Results**
5075	Klamath	52	Wingate Creek	matrix	2	-123.74	41.74	No RTV
5023	Klamath	51	Middle Creek	matrix	2	-123.01	41.89	No RTV
5054	Klamath	52	Woods Bar	matrix	2	-123.34	41.79	No RTV
5091	Klamath	52	S Fk Clear Creek	matrix	2	-123.69	41.69	No RTV
5053	Klamath	52	Curly Jack	matrix	2	-123.4	41.79	No RTV
5151	Klamath	58	Salal Gulch	matrix	2	-123.5	41.5	**Active RTV**
Reserve/Non-Late-Successional/Old Growth								
FIA Plot No.	**Forest**	**District**	**Geographic Area**	**Land Use Allocation**	**Strata**	**Longitude**	**Latitude**	**Results**
5042	Klamath	51	Horse Creek	reserve	3	-123.07	41.84	No RTV
5178	Klamath	58	Merrill Creek	reserve	3	-123.46	41.39	No RTV

2015 Western Klamath Restoration Partnership Project
Survey & Manage Report 2015 (by Kary Schlick and Tom Kirk)

Oregon Red Tree Vole

The Red tree vole, is a Category C Survey and Manage species. The objective for Category C (uncommon) species is to identify and manage high priority sites (HPS) to provide for a reasonable assurance of species persistence. Until high-priority sites can be determined, manage all known sites (USDA and USDI 2001, pg. 10) and survey prior to habitat-disturbing activities or strategic surveys for the taxon (USDA and USDI 2001, pg. 19-20).

High-priority site management recommendations for the Red tree vole (RTV) are currently in draft (Huff 2015) therefore the Six Rivers National Forest tiers to the Survey Protocol for the Red Tree Vole (*Arborimus longicaudus*), Version 3.0, Nov. 2012 to determine if pre-disturbance surveys are required. Three criteria must be met to trigger surveys: 1) the proposed project is within the Northern Mesic, Mesic, or Xeric Survey Zones, 2) there is suitable habitat within the planning area that may potentially contribute to a reasonable assurance of persistence of tree voles, and 3) the project disturbance is likely to have a significant negative impact on the species' habitat, its life cycle, microclimate, or life support requirements that affects persistence of red tree voles (USDA and USDI 2001: S&G 22).

The following summary of the analysis assesses these 3 criteria for the Western Klamath Restoration Partnership (WKRP) project. In 2015 four proposed project boundaries were delineated for planning ecological restoration and community protection prescriptions. The four proposed project areas are; 1) Donahue, 2) Patterson, 3) Ti-Bar, and 4) Rogers. All are within the 5th field watershed Rock Creek-Klamath River (HUC: 1801020907) although a sliver of Donahue occurs also in 5th field watershed Bluff Creek-Klamath River (HUC: 1801020908).

All four boundaries, for the most part, are on Ukonom Ranger District, which is in the Xeric Zone for RTV. For purposes of deciding whether a stand is suitable habitat, according to the protocol, the quadratic mean diameter (QMD) is greater than or equal to 16" in the Xeric Zone. The four boundaries where assessed using GIS vegetation layers, and nesting roosting habitat for the spotted owl, to identify stands with the greatest likelihood of containing the minimum QMD requirement. The mapped polygons received site visits by the wildlife biologist to further determine if the stands were composed of the general habitat descriptions necessary to trigger surveys (2b, pg. 9).

Conifer or conifer-dominated mixed conifer-hardwoods forest with canopy closure of intermediate, co-dominant trees greater than or equal to 60%, and with two or more super-dominant conifer trees per acre that would support vole nests was not detected on Patterson, Ti-Bar, or Rogers. The lack of interlocking canopy is apparent during site visits along with aerial photos that show a fragmented area due to past forestry, wildfire, and private ownership.

The west-side of Donahue has swaths of potential suitable habitat outside but adjacent to the project boundary with slivers inside. Likewise a few patches occur inside the boundary to the north of Teneyek Creek and around Donahue Flat. These patches had limited general habitat characteristic and minimal contiguous habitat which would not trigger surveys. In an effort to ascertain if these areas once supported RTV, the biologist's implemented modified line transects, in patches that had the likelihood to exceed an acre, but no new or old nests were detected. Individual tree exams were done during these habitat assessments, if trees had some of the following characteristics that provide foundations for vole nests: large limbs, palmate branch clusters, well developed crowns, cavities, broken tops, forked trunks, multiple leaders, or dwarf mistletoe brooms. No RTV nests were detected. A few vacant avian (non-RTV) nests were recorded. The habitat in Donahue is considered by the biologist, not suitable habitat to support the persistence of the species.
All four project boundaries had no known sites. The detection rate of vole nests is zero. Site quality is low, primarily due to the lack of "superdominate" trees or characteristics that provide foundation for vole nests. The amount of contiguous conifer canopy closure and late-successional forest are limited to small islands in non-habitat. Lastly each project boundary is comprised of private land ownership, and matrix, creating a fragmented ecosystem.
Project design features that protect existing adjacent habitat from catastrophic wildfire would be recommended. Prescriptions that include; fuel reduction, create defendable spaces with sufficient fuel breaks adjacent to large swaths of contiguous conifer canopy that could prevent crown fires, and restoration that accelerates late successional reserves characteristics would benefit this species.
Based on the following summary of the analysis for the Western Klamath Restoration Partnership (WKRP) project, there is no suitable habitat within the planning area that may potentially contribute to a reasonable assurance of persistence of tree voles. Therefore activities with disturbance are not likely to have a substantial negative impact on the species habitat, its life cycle, microclimate, or life support requirements (USDA and USDI 2001).

Table 4. Assessment of RTV Habitat in WKRP Focal Areas in 2015

Focal Area	2015 Survey Dates	Habitat that triggers surveys	Confirmed RTV Nest	Unconfirmed RTV Nests
Donahue	March 3, 6, 9	No	No Detections	Zero
Rogers	April 23	No	No Detections	Zero
Patterson	March 13	No	No Detections	Zero
Ti-Bar	March 13	No	No Detections	Zero

Terrestrial Mollusk Survey and Manage Species the Blue-Gray Taildropper (*Prophysaon coeruleum*)

The Blue-Gray taildropper (*Prophysaon coeruleum*) occurs on the Orleans Ranger Districts (Survey and Manage Protocol 2003). The blue-gray taildropper is a "Category A" species that typically has pre-disturbance surveys and is listed to occur on the Orleans Ranger District (Orleans RD). The Somes Bar Project occurs primarily on the Ukonom Ranger District (97%) which is outside of the range of this species. Three percent of the project area occurs on the Orleans Ranger District. This portion of the project is located in the Donahue focal area. Review of the NRIS database and numerous surveys for SRNF projects has not detected the species on the Orleans RD or the Ukonom Ranger District. Species collected during survey efforts include other species of *Prophysaon* including (e.g. *P. dubium*). In addition other undescribed *Prophysaon* species by a taxon expert, Dr. Barry Roth and no detections of *Prophysaon coeruleum*. Of the 183.9 acres in the Donahue focal area occurring on the Orleans Ranger District, 34 acres (18%) are proposed for mechanical treatment, 68.2 acres (37%) are proposed for manual rx fuels treatment units, and the remaining 17.3 acres (9%) of mastication treatment that will be followed by manual treatments and prescribed burns. This would be a total of 119.5 acres (65%) of the 183.9 acres within the Donahue focal area proposed for treatment on the Orleans RD. The remaining 64.4 acres would be excluded from commercial treatment because of mitigation (FWS) including the designated northern spotted owl nest grove, and private land. The Pechman Rule also provides exemption for fuels treatments and in commercial stands less than 80 years of age. This species will not be discussed further in this document.

Summary

S&M Fauna

Survey and Manage species were reviewed for the Somes Bar Integrated Fire Management Project. The Oregon red tree vole (*Arborimus longicaudus*) were determined to be the only S&M species that required review and field surveys. The review of the above guidance for S&M species was conducted, followed by review of locations in the USFS Natural Resources Inventory System (NRIS) and California Natural Diversity Database (CNDDB). Recent review of known nest locations was summarized by the Klamath National Forest through 2002. Field site visits by Six Rivers National Forest wildlife staff in April of 2015 for the Somes Bar Integrated Fire Management Project/WKRP in the four focal areas, with no detections of Oregon red tree vole's nest or suitable habitat. The Some Bar Integrated Fire Management Project will not likely impact the species or cause a decline in their populations.

S&M Plants and Fungi

Surveys were conducted for potential survey and manage plant species in 2015. Survey efforts focused on potentially suitable habitat for these species, specifically stands in the mid-mature and older seral stages with the structure and canopy cover that defines the habitat.

Surveys for Category B fungi—termed "equivalent effort surveys"--were not undertaken for S&M fungi species. The prescriptions associated with the proposed actions in late-successional forests, emphasize manual thinning of ladder fuels and prescribed burning or understory burning (est. 80% of the treatment planned to occur in late successional forests). Prescriptions include canopy cover retention of 60% (except around trees of special interest-settings that incorporate < 20 acres) and retention of pre-dominant trees. Standards and Guidelines pertaining to protection of coarse woody debris and fine organic matter also address habitat components that are critical to fungi (USDA Forest Service 2010). Essentially, fungi surveys were not conducted because the prescriptions proposed are not considered habitat-disturbing activities for fungi; furthermore, the activities proposed meet the intent of the following Pechman Exemption: *The portions of projects involving hazardous fuel treatments where prescribed fire is applied*. Given that a subset of S&M fungi are also on the Forest Sensitive species list, additional information on those habitat attributes to be maintained for late successional fungi is provided in Chapter 3 of the Environmental Assessment and the Biological Assessment/Evaluation (BA/BE) for Sensitive Plant and Fungi species for this project (Hoover 2017).

Prior to undertaking surveys there was a known site of the bryophyte *Buxbaumia viridis* (Category A) in the Donahue Focal Area, Unit 2403 and a known site of the fungus, *Phaeocollybia olivaceae* in the Ti Bar Focal Area, Unit 2161. Activities planned for these units are manual removal of ladder fuels and followed by prescribed burning at 5 to 7 year intervals.

As a result of surveys in 2015, an additional site of *Buxbaumia viridis* was detected in Patterson Focal Area, Unit 2247, in association with a riparian area. Surveys resulted in a new site of *Cypripedium fasciculatum* (Category C) in the Ti Bar Focal Area, Unit 2162. Activities planned for both of these units are manual removal of ladder fuels, followed by prescribed burning at 5 to 7 year intervals.

Like *Phaeocollybia olivaceae, Buxbaumia viridis* and *Cypripedium fasciculatum* are both S&M species and Forest Sensitive species. Additional information on the species and their habitats is provided in the BA/BE (Hoover 2017). Management for persistence at a site (or in the case of Sensitive species, management that will not likely result in a trend toward Federal listing or loss of viability) in the aforementioned units incorporates prescriptions that aim to maintain habitat attributes for these species (e.g. canopy closure at 60%) and specific to sites of *Phaeocollybia*, *Buxbaumia* and *Cypripedium,* project design features that incorporate buffers where thinning of ladder fuels can occur within the buffer, but no pile burning. Prescribed burning at low intensity would follow. The combination of unit prescriptions, Forest Standard and Guidelines, and site specific project design features will provide for persistence of species at their respective sites.

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